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THE JOURNAL OF PERIODONTOLOGY is published to serve as the professional journal of periodontia; to keep dentists in touch with research being carried on in this field and related sciences; to stimulate greater interest in the supporting tissues of the teeth and their relation to oral and general health. The plan to continue the publication of abstracts indefinitely will make the Journal a fund of extensive information, readily available to students, teachers, researchers, and clinicians.

The Journal is the official organ of the American Academy of Periodontology and will contain, therefore, those papers of scientific and clinical interest which are presented at the annual meetings of that society. Abstracts of important articles related to periodontology that appeared during the year of 1946 will be published in this year's issues.

We are grateful to all who have made available the subject matter from which the abstracts and copies of abstracts have been made, including the authors of the original articles, owners of the journals mentioned in the text of the abstract section, and those who have aided by contributing the material for this issue.

"The scope and thoroughness of diagnosis in this field makes this specialty [periodontia] one of the leading in dentistry. Moreover, since the most important objective in this field is prevention of dental disease, this specialty is spearheading the most progressive trends in the profession. When the periodontists also add to their diagnostic armamentarium the psychosomatic approach to diagnosis, they may write a new chapter in dental history."

Dr. Joseph S. Landa
Dental Items of Interest 69(2):109,
April, 1947.

THE JOURNAL OF PERIODONTOLOGY

APRIL, NINETEEN HUNDRED FORTY-SEVEN

A Study on Reattachment of the Supporting Structures of the Teeth*

By FRANK E. BEUBE, D.D.S., *New York, N. Y.*

WHETHER it is possible for the supporting structures of the teeth to become regenerated and reattached once they have been lost or severed during the course of periodontosis is still a moot question. Opinions on the subject are divided. Skillen and Lundquist (1), Coolidge (2), G. V. Black (3), Orban (4), and Kronfeld (5) stated that reattachment has not been demonstrated and believed that the detachment of the periodontal membrane from the cementum of the root is permanent. On the other hand, Gottlieb (6), Box (7), Leonard (8), Noyes (9), and Merritt (10, 11) believe that functional reattachment may occur.

If reattachment** is possible, it seems essential to recognize that it must involve regeneration of the supporting tissues. The writer (12) has pointed out "that portion of periodontal membrane which was included in the diseased area is destroyed and cannot become reattached to the root surface". More recently Gottlieb (13) wrote that "the alveolar bone of a tooth together with its periodontal membrane is never present in the area of pocket formation". In order that tissue repair and reattachment may take place, there must be regeneration of bone, periodontal membrane, and cementum; the old tissues do not become reconnected, but new tissues must be formed.

It seems remarkable that, whereas repair and reattachment are certainly not common in periodontosis, their counterparts are the usual rule in healing following injury or infection elsewhere in the body. Soft tissue wounds, whether small or extensive, in which soft parts are actually lost, are repaired through the process of organization of granulation tissue. The repair of hard connective tissue seems to occur by a similar process. Murray (14) has stated with respect to fractures of the long bones, that "the fracture heals, just as does any other tissue, by the growth of granulation tissue". Murray describes such healing as resulting from the growth of cells from the surrounding tissues within a fibrin network. Since fibrin has "an affinity for calcium", which is present at the site of fracture, bone healing takes place. It would seem

*From the Division of Periodontology, School of Dental and Oral Surgery of the Faculty of Medicine, Columbia University, New York, N. Y. Read before the American Academy of Periodontology, October 17, 1946.

**The word reattachment is used in this paper, primarily to refer to the repair of the alveolar bone, periodontal membrane, and cementum in cases of periodontosis, and also in the broader sense used by others to include repair of the same tissues not related to periodontosis. For example, Orban (4) refers to reattachment in cases of resorbed dentin surfaces.

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logical to expect that similar repair of bone around teeth should be possible, provided that the organization of granulation tissue were not interfered with, and that an adequate supply of calcium were available in the healing area.

On the premise that repair of injured tissue is due in part to the ecchymosis at the injured area followed by organization of the clot, the customary failure of healing of periodontal pockets may be explained in part as due to the very poor flow of blood into the periodontal area. No hemorrhage can be expected from the root surface and the amount from the surrounding soft tissues and alveolar bone cannot be compared with the flow of blood from most wounds elsewhere in the body. Therefore, the amount of granulation tissue that can accumulate within the soft and hard tissue walls of the pockets would be meager as well as narrowly confined. If an effort is to be made to restore the lost supporting structures of the teeth, it would seem necessary to assure the presence of a sufficient clot for organization as well as the necessary supply of calcium. Then if neither infection nor epithelial downgrowth intervened, regeneration of both soft and hard tissue from the granulation tissue might be expected. Reattachment under these conditions would require that a new layer of cementum be deposited on old cementum or on exposed dentin, and that new connective tissue (periodontal membrane) be formed as well as new alveolar bone.

The present study was a test of this hypothesis involving experiments on dogs and observations on patients under treatment. The experimental material was observed at short intervals by both histological and radiographic methods, in order that the sequence of changes, from the formation of the initial blood clot between the soft tissue wall of the pocket and the root surface to the completion of healing, could be noted.

EXPERIMENTAL

Phase I—Animal Experimentation.

Portions of alveolar bone, periodontal membrane, and dentin were removed from dogs' teeth. The soft tissue was retained over the denuded areas. Clinical and histological observations were made after the following postoperative periods—24 hrs., 3½ days, 8 days, 14 days, 17 days, 27 days, 35 days, and 2 years.

Phase II.

Ten cases of periodontosis in patients were treated by conservative periodontal technique, followed by the implantation of boiled cow-bone powder (15) in five of the ten cases. Radiographic observations were made from 24 hours postoperatively to a period of twelve years.

PHASE I—ANIMAL EXPERIMENTATION

METHOD

A semilunar incision was made in the mucosa overlying the normal supporting structures of the canine teeth of seven dogs. The soft tissue was retracted and the buccal plate of bone was mechanically removed, including the periodontal membrane and cementum as well as some dentin. The concavity thus formed, which was approximately 6 mm. square, readily filled with blood, which was allowed to clot. The wound edges were then sutured tightly into position. All four canine teeth were operated upon in each animal at one sitting. The dogs were then sacrificed individually at the end of 24 hours, 3½ days, 8 days, 14 days, 27 days, 35 days, and 2 years. The tissue sections were immediately removed to 10% formalin solution.

RESULTS

Twenty-four hour specimens:

Clinical appearance.—The wound edges showed early granulation tissue between them, and could readily be separated.

Microscopic.—The operated area was filled with numerous erythrocytes and heavily infiltrated with polymorphonuclear leukocytes. Some mononuclear leukocytes were observed (Fig. 1).

Three and one-half day specimens:

Clinical appearance.—The wound edges were now closed by firm granulation tissue, which was more resistant to probing than the 24 hour sections, but bleeding could readily be produced. The mucosa was slightly swollen.

Microscopic.—Polymorphonuclear infiltration was still evident but now mononuclear leukocytes were seen in abundance (Fig. 2).

Eight day specimens:

Clinical appearance.—The wound edges

were fully healed, and bleeding could not be induced by gentle probing. There was a slight swelling of the mucosa directly over the operated area.

Microscopic.—Well organized granulation tissue was observed with fibroblasts throughout the field and new blood vessels. Some polymorphonuclear and mononuclear leukocytes were still present (Fig 3).

Fourteen day specimens:

Clinical appearance.—Healing of the wound had taken place and the mucosa was normal in appearance.

Microscopic.—These sections showed additional maturity of the granulation tissue when compared with the eight day specimen. The loosely meshed tissue of fibroblasts filled the entire space overlying the denuded dentin surface. Some inflammatory cells were still evident.

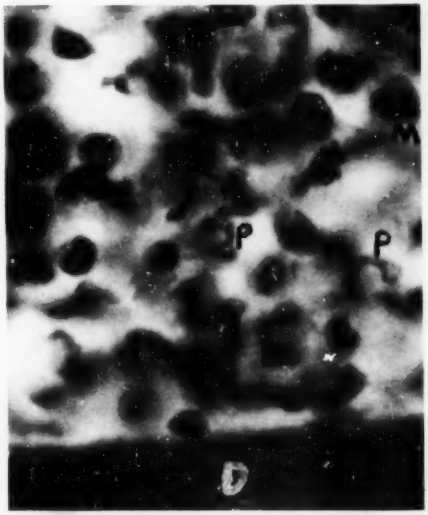

Fig. 1. Twenty-four hour specimen. Showing profuse numbers of polymorphonuclear leukocytes. (P) Polymorphonuclear leukocyte. (D) Dentin. (M) Mononuclear leukocyte.

Seventeen day specimens:

Clinical appearance.—Healing of the wound had taken place and the mucosa was normal in appearance.

Microscopic.—These specimens disclosed the laying down of a few islands of bone at the cut ends of the old alveolar bone (Fig. 4). The interstitial tissue was well-defined, and the fibroblastic tissue was in close contact with the denuded dentin surface. Round cell infiltration could still be seen in the soft tissue (Fig. 5).

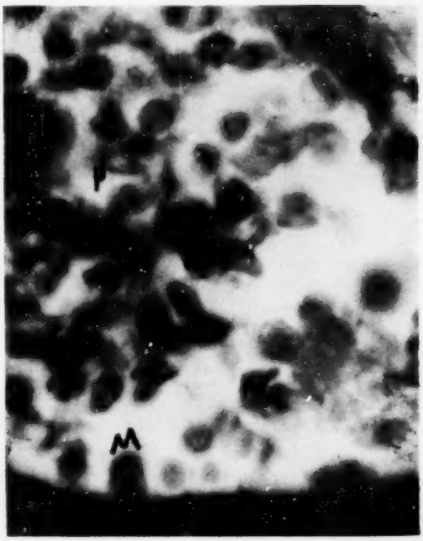

Fig. 2. Three and one-half day specimen. An abundance of mononuclear leukocytes. (M) Mononuclear leukocyte. (P) Polymorphonuclear leukocyte. (D) Dentin.

Twenty-seven day specimens:

Clinical appearance.—Healing of the

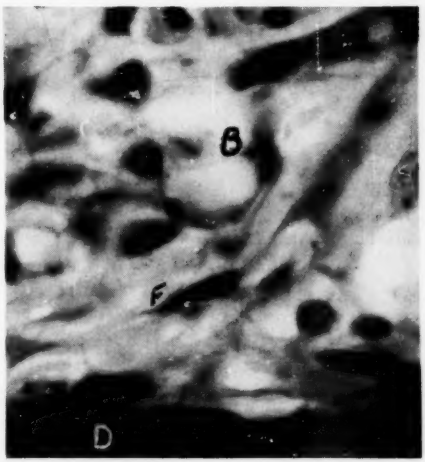

Fig. 3. Eight day specimen. Organization of granulation tissue. Note: (F) fibroblasts, (B) blood vessel, (D) dentin.

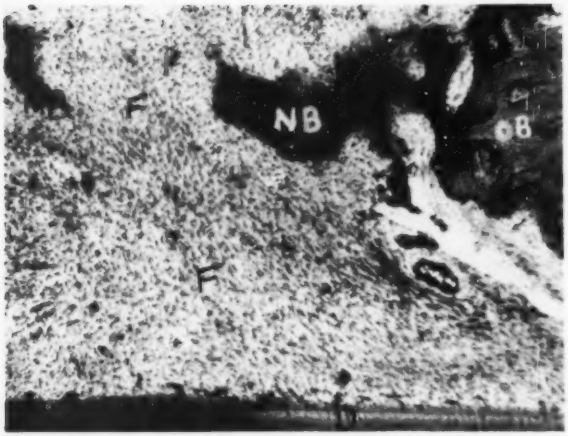

Fig. 4. Seventeen day specimen. New bone formation at and near end of old bone. (NB) new bone, (OB) old bone, (F) fibroblastic tissue, which is well adapted to the denuded dentin (D) surface.

wound had taken place and the mucosa was normal in appearance.

Microscopic.—In lieu of fibroblastic tissue, in direct contact with dentin, a layer of new cementum or cementoid tissue was now laid down over the entire exposed dentin surface. The amount of new bone had increased perceptibly and had grown completely across the gap to join the two cut ends of the old bone. The fibroblastic tissue separated the newly generated bone from the new cementum. An occasional mononuclear leukocyte could be seen (Fig 6).

Thirty-five day specimens:

Clinical appearance.—Healing of the wound had taken place and the mucosa was normal in appearance.

Microscopic.—These sections showed some increase in the density of the cementum and alveolar bone, otherwise the changes were similar to the 27 day specimens.

Two year specimens:

Clinical appearance.—Healing of the wound had taken place and the mucosa was normal in appearance.

Microscopic.—The new alveolar bone was found to be as dense as the old bone. The connective tissue between the new bone and cementum was a narrow and structurally well-arranged periodontal membrane; the cementum was thick and had been laid down in a continuous fashion over the dentin surface as well as on old cementum, although it was not uniform in thickness (Fig. 7).

DISCUSSION

Changes in the damaged soft and hard tissues observed microscopically in these dogs during the course of healing included an acute inflammatory reaction as evidenced by the profusion of polymorphonuclear leukocytes during the first 24 hours and of mononuclear leukocytes in the 3½ day specimens. A transition to fibroblastic tissue was observed on the eighth postoperative day. The process of healing seen in the succeeding specimens appeared to be identical with that in injuries involving soft tissues.

By the 27th postoperative day it was

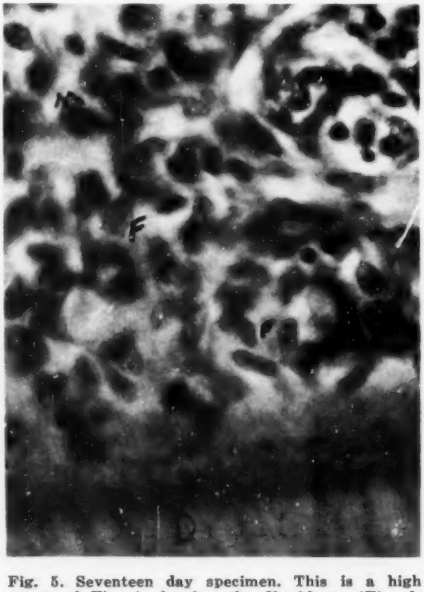

Fig. 5. Seventeen day specimen. This is a high power of Fig. 4 showing the fibroblasts (F), although the cytoplasmic processes are not apparent. (M) Mononuclear leukocyte. (P) polymorphonuclear leukocyte. (D) dentin.

evident that the new bone and the new cementum were separated by a definite area of fibroblastic tissue. This tissue was evidently the precursor of a periodontal membrane. Two years after operation a structurally well-arranged periodontal membrane was present. The transition of the fibroblastic tissue to recognizable periodontal membrane probably occurred before the two-year observation.

The new cementum appeared to become thickened by continuous deposition of this tissue. The earlier sections (27th and 35th postoperative days) showed very few imbedded cells in the cementum whereas after 2 years the new cementum was extremely cellular.

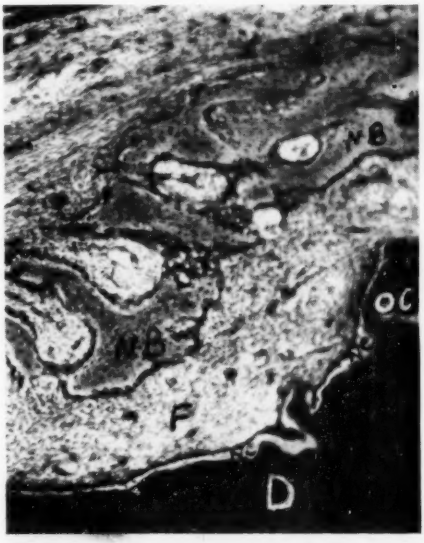

Fig. 6. Twenty-seven day specimen. New cementum (NC) has been deposited on denuded dentin (D) and at cut end of old cementum (OC). Fibroblastic tissue (F). New bone (NB).

The new bone was laid down in the form of islands which coalesced and became denser and less trabeculated. Growth of new bone always began at the cut ends of the old bone and the gap was ultimately closed by coalescence of the islands.

Evidence that regeneration of the periodontal structures occurs in man, as it does in animals, was given in a section of a patient's tooth and its supporting tissues which had not been affected by periodontal

Fig. 7. Two year specimen. The new cementum (NC) has increased in thickness over the dentin (D) and old cementum (OC). A structurally well-arranged, new periodontal membrane (PM) separates the now dense new alveolar bone (NB).

disease. An operation was performed around this tooth identical with that performed on the dogs' teeth and periodontium. It was noted that complete replacement and formation of new cementum, periodontal membrane, and bone took place after a post-operative period of six months (Fig. 8). It

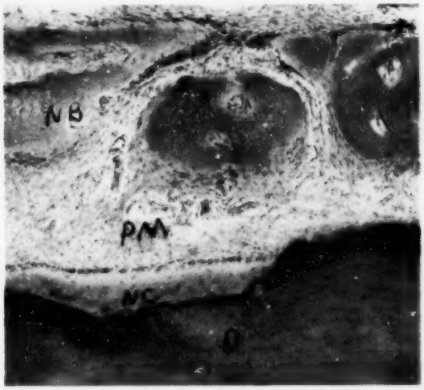

Fig. 8. Six month specimen (human). New cementum (NC) has been deposited on dentin (D). New periodontal membrane (PM). New alveolar bone (NB).

is likely that this tissue repair took place at an earlier stage of healing.

It is evident from this study that the supporting structures of teeth, both animal and human, are repaired after mechanical removal and that biologic reattachment takes place. It seemed likely that similar tissue repair might occur after suitable treatment of periodontosis in patients. The following study of ten cases of periodontosis in patients was planned accordingly.

PHASE II—CLINICAL AND RADIOGRAPHIC FINDINGS OF TISSUE HEALING IN TEN TREATED CASES OF PERIODONTOSIS.

METHOD

The cases selected for treatment all presented destruction of alveolar bone and detachment of periodontal membrane extending to the apical third of the root or beyond and in a wide area laterally. Six of the cases had vertical or intrabony pockets, while four showed horizontal destruction of the bone.

The periodontal pockets of each of the ten cases were measured in millimeters with a periodontal probe. The mobility of the teeth was recorded. Conservative periodontal treatment* was applied in all instances, followed by implantation of boiled cow-bone powder into five of the operated areas after failure with conservative treatment to close these pockets. The waiting period after conservative treatment had been completed and prior to the use of the bone powder was, in separate cases, 4 weeks, 5 weeks, 6 weeks, 16 weeks, and 42 weeks. The involved teeth were ligated, and the occlusion corrected wherever it appeared essential. Home care was authorized for all patients.

Radiographic examination was made of all cases prior to any treatment and each area was exposed for 1, 2, 3, and 4 seconds respectively. This was done to insure against apparent bone repair due to under-exposure in any given instance, as well as to avoid misinterpretation of the radiograph which had been over-exposed, and thereby burning out any generated bone which might have been seen in the radiographs if the correct exposure for that area had been given. Follow-up radiographic examination was made as early as 24 hours postoperatively, then at weekly intervals for one month, then monthly for one year, and finally every 4 to 6 months. The final post-operative radiographic picture for each of the ten cases respectively was 1, 1½, 1½, 3, 3, 4, 4, 4½, 5, and 12 years.

RESULTS

Clinical.—The periodontal pockets as remeasured with pocket millimeter probe were eliminated in all ten cases. Loose teeth were firm in their sockets in all instances after treatment.

Radiographic.—The formation of new alveolar bone was seen in each of the cases treated. The amount of new bone deposited ranged from restoration of ¼ to as much as ⅔ of the root length newly protected and encased.

DISCUSSION

The average length of time for the radiolucent areas to be fully replaced with new bone was ten months. The density of this bone, however, subsequently increased from a bucco-lingual direction. In addition, four of the ten cases showed the formation of a new lamina dura at the crest of the bone (Figs. 9 and 10, and Figs. 11 and 12). From the cases studied, both horizontal and intrabony periodontal pockets showed new bone growth. (Figs. 13 and 14, and Figs. 15 and 16.)

The new alveolar bone was laid down uniformly and continuously in all ten cases. It commenced at the edge of the old bone and slowly filled in the radiolucent areas. In no instance did ossification take place over a broad area at one time. Figures 17 and 18, and Figures 19, 20, and 21 demonstrate this phenomenon. Even though there are still radiolucencies as seen in Figures 18 and 20, these areas cannot be considered as pathological tissue, but rather as normal fibroblastic tissue which ultimately is replaced with new alveolar bone as seen in Figure 21. This new bone is probably separated from the root of the tooth by new cementum and periodontal membrane.

*This included root surface scaling as well as a vigorous curettement of the soft tissue wall of the pocket. This caused bleeding of the tissue, which, it was hoped, would provide an adequate supply of blood for subsequent granulation tissue organization.

Fig. 9

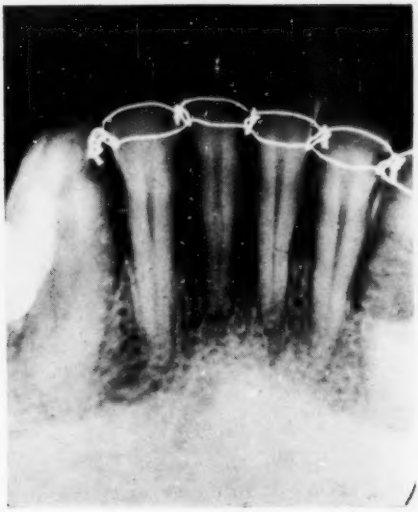

Fig. 10

Fig. 9. Case 1. Lower left central. Horizontal destruction of nearly 2/3 of the supporting alveolar bone. Pockets of 8 mm. on mesial and distal.

Fig. 10. Case 1. Height of alveolar bone increased with lamina dura. One year postoperative. Conservative treatment.

Fig. 11

Fig. 12

Fig. 11. Case 10. Lower left cuspid. Intrabony pocket formation and loss of 2/3 of supporting alveolar bone. A pocket of 8 mm. on mesial.

Fig. 12. Case 10. Height of alveolar bone increased by 1/2 length of root, with lamina dura. Twelve years postoperative. Conservative and boiled bone powder treatment.

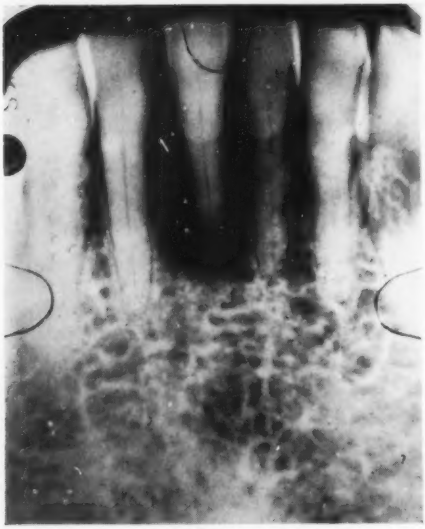

Fig. 13

Fig. 14

Fig. 13. Case 7. Lower left central. Horizontal destruction of the alveolar bone to apex of tooth. Pockets of 10 mm. on mesial and distal.

Fig. 14. Case 7. Two-thirds of the root length is newly protected with alveolar bone. Four years postoperative. Conservative and boiled bone powder treatment.

Fig. 15

Fig. 16

Fig. 15. Case 4. Upper right central. Intrabony pocket formation, and loss of 2/3 of the supporting alveolar bone on mesial and distal surfaces. Ten mm. pocket on distal, 8 mm. on lingual. There was no detachment on the mesial, except that which could be probed from the lingual pocket.

Fig. 16. Case 4. The radiolucent area has been replaced by new bony tissue. Three years postoperative. Conservative treatment.

Fig. 17

Fig. 18

Fig. 17. Case 3. Lower right central. Intrabony pocket formation and loss of 2/3 of the supporting alveolar bone on distal surface. Pocket of 8 mm. on distal.

Fig. 18. Case 3. New bone is being deposited at the old bone and the radiolucency is being slowly filled in toward the root. The generation of new bone is not complete. Nine months postoperative. Conservative and boiled bone powder treatment.

This was observed in the histological specimens of the animal study, and the human section, which show the transition from fibroblastic tissue to new bone, periodontal membrane, and cementum, (Figs. 4, 6, 7, and 8).

Both the conservative method and the boiled cow-bone powder technique seemed to contribute to the repair of the tissues and deposition of new osseous growth around the teeth of the ten cases treated. Five of the ten cases did not show closure of the pockets with conservative treatment alone, after allowing as much as 42 weeks to elapse in one instance, during which time the conservative method was repeatedly applied without success. The reason for failure might have been inadequate organization of granulation tissue at the site of operation or insufficient calcium supply or both. It is possible that the inclusion of the boiled bone powder after the conservative treatment had been tried acted as the calcium source which was necessary for aiding in the hard tissue repair in these five cases.

From the clinical and radiographic findings of new osseous growth in the ten treated cases of periodontosis, it can be readily concluded that the periodontal lesion has been eradicated. It is reasonable to conjecture that, since new cementum was always deposited along with new bone in the group of animals studied, as well as in the human specimen, that a new growth of cementum took place in the clinical cases as well. Since the specimens of the animal study always demonstrated the presence of a connective tissue, the periodontal membrane, it can also be expected to have formed in the ten periodontal cases, thereby creating an organic union between the root and the bone, or reattachment. Final and positive proof of this should be obtained by the sectioning of a block of hard and soft tissues of any one of the clinical cases, or similar cases, and microscopic examination made. This is to be reported in a subsequent paper.

The data for all the cases included in this study are given in Table I. The following two cases are representative of the ten cases reported.

TABLE I

PRE-TREATMENT												POSTOPERATIVE						
Case No.	Sex	Age	Tooth	Pocket Depth in mm. M	D	Li.	Type of Pocket	Lamina dura destroyed at crest	Extent of bone breakdown as related to root length	Mobility	Treatment	Pocket Depth	Mobility	Time between conserv. tr. & bone powder implant. in weeks	Lamina dura replaced at crest	Extent of bone generated as related to root length	Time in months to fill in radiolucent area	Final radiograph taken—in years
1	F	51	LL Cen.	8	8		Horizontal	x	3/3	3	Cons.	0	0		x	1/4	10	1
2	M	57	UL Cen.	8			Intrabony	x	1/2	1	Cons.	0	0			1/2	8	1½
3	M	45	LR Cen.	8			Intrabony	x	2/3	1	Cons. B. Powder	0	0	6		2/3	15	1½
4	M	14	UR Cen.		10	8	Intrabony	x	2/3	3	Cons.	0	0			2/3	10	3
5	F	38	UR Cus.	9			Intrabony	x	2/3	2	Cons.	0	0			1/2	10	3
6	F	32	UL Cus.	11	8		Intrabony	x	2/3	2	Cons. B. Powder	0	0	16	x	2/3	12	4
7*	M	52	LL Cen.	10	10		Horizontal	x	3/3	3	Cons. B. Powder	0	0	4	x	2/3	10	4
8	F	35	UR Lat.		8		Horizontal	x	3/3	2	Cons. B. Powder	0	0	5		2/3	10	4½
9	M	55	LL Cen.	8			Horizontal	x	2/3	1	Cons.	0	0			1/4		5
10	M	38	LL Cus.	8			Intrabony	x	2/3	3	Cons. B. Powder	0	0	42	x	1/2	12	12

*In coöperation with Dr. Herbert F. Silvers

Fig. 19

Fig. 20

Fig. 21

Fig. 19. Case 6. Upper left cuspid. Intrabony pocket formation and loss of 2/3 of the alveolar bone. Pockets of 11 mm. on mesial and 8 mm. on distal.

Fig. 20. Case 6. New bone is being deposited at the old bone and the radiolucency is being slowly filled in toward the root. Nine weeks postoperative bone powder implantation.

Fig. 21. Case 6. The generation of new bone is complete on the mesial. Four years postoperative. Conservative treatment and bone powder.

CASE REPORTS

Case 4—Male. White. Age 14.

Chief Complaint—Loosening of upper right central.

Dental History—Some weeks previously patient became aware of a "peculiar sensation" about this tooth.

Dental Examination—The upper right central had a 10 mm. intrabony periodontal pocket on the distal and an 8 mm. pocket on the lingual, which penetrated to the breakdown on the mesial. The alveolar bone was destroyed to the apical third of the root on both mesial and distal surfaces (Fig. 15). It had a mobility of 3. No traumatic stress could be noted.

Treatment—The central was treated by the conservative method. The pockets about the tooth were treated on three separate visits, one week apart. Probing and radiographs at the end of four months indicated a clinical closure of pocket, and some alveolar bone deposition.

Results—Radiographs taken 10 months after first visit showed that the original radiolucent area was filled with trabeculated bone. Three years later, the bone was still intact (Fig. 16). The tooth was also free from mobility and a periodontal pocket could not be found upon probing.

Case 10—Male. White. Age 38.

Chief Complaint—Loosening of lower left cuspid.

Dental Examination—All teeth had been removed except the upper and lower anterior teeth. No dentures had been inserted. An 8 mm. intrabony periodontal pocket was probed on mesial of the lower left cuspid. The tooth had a mobility of 3. (Fig. 11).

Treatment—Scaling and curetting of the tooth and soft tissues caused the pocket to vary by a few millimeters but original depth of 8 mm. would again return after a few weeks. The conservative treatment was tried several times without success. An operation was performed and bone powder implanted ten months after trial with conservative method. The lower left cuspid and lateral were splinted with two ¾ crowns two years after the operation and after the building up of new bone. The missing teeth were not replaced with dentures.

Results—Some generation of alveolar bone was noted after 10 months. Twelve years after treatment, the alveolar bone was increased in density and height, and lamina dura is seen at the crest of the interdental bone (Fig. 12). The original 8 mm. periodontal pocket could not be probed, and the tooth was no longer mobile.

SUMMARY AND CONCLUSION

On the hypothesis that reattachment of periodontal tissues might occur during normal organization of granulation tissue, 28 teeth in 7 dogs were denuded of areas

of alveolar bone, periodontal membrane, and cementum, sutured over the blood clot and individual animals sacrificed at intervals during healing and examined grossly and microscopically.

Inflammatory cells were seen in 24 hour and 3½ day specimens, with granulation tissue at 8, 14, and 17 days. New cementum was found attached to the injured dentin surface by the 27th day, along with new alveolar bone, the two being separated by new fibroblastic tissue. New bone and cementum were found increased in density and thickness on the 35th day, and more so 2 years later. At 2 years, a structurally well-arranged, new periodontal membrane was present.

730 Fifth Avenue.

Microscopic examination of a human tooth 6 months after comparable injury revealed similar reparative changes.

Conservative periodontal treatment in 10 patients induced, in 5, regeneration of alveolar bone as indicated radiographically, and apparent reattachment, as determined clinically. In the 5 cases that failed to respond to this treatment, subsequent implantation of boiled cow-bone powder resulted in similar regeneration and apparent reattachment. Bone regeneration equivalent to ¼ to ⅔ the length of the root was observed.

Biologic reattachment has thus been demonstrated under experimental conditions, and appears also to have occurred in patients with periodontal disease.

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*Credit is due Dr. Herbert Bartelstone and Mrs. Ellen Hosiosky for review of the literature.

In Our Opinion

THE PREPARATION FOR CERTIFICATION IN PERIODONTOLOGY

Initial Statement

By HAROLD J. LEONARD, B.A., D.D.S., *New York 32, N. Y.*

BY authorization of the House of Delegates of the American Dental Association, the Council on Dental Education is undertaking to perform a function for postgraduate education and the training of specialists in dentistry similar to its function in developing and regulating undergraduate dental education. A temporary standard minimum requirement for the education of specialists in dentistry has been established by the Council which is not quite equal to the standard established for medical specialists by the Council on Medical Education and Hospitals, but still a very high and difficult one at this time when postgraduate educational facilities for dentists in colleges and hospitals are undeveloped. This goal is, in brief, two years of postgraduate education and training in the specialty after graduation from dental school plus three years of practice devoted primarily and principally to the specialty. The content of the education and training, and the school, hospital, clinic or laboratory in which it is received, must be approved by the Specialty Board concerned working with the Council on Dental Education. The standard minimum requirement for preparation for the medical specialties is one year of internship after graduation from medical school, three years of postgraduate study and clinical training in medical schools, hospitals, clinics, laboratories, or other appropriate institutions, and two years of medical practice (type not specified).

The Council on Dental Education is coöperating with the Dental Specialty Boards in helping them to establish uniformly high standards. It is undertaking to help the dental schools in the development of postgraduate facilities necessary for the education of those preparing for specialty board examinations. And it is undertaking to stimulate a reorganization of hospital dental services with the objective of making these services of the same value for dental interns and dental residents as the medical services are for medical postgraduates. Whether or not dental graduates live in the hospitals during their period of postgraduate training, they must be enabled to render service such that their maintenance costs may be provided by the institution. Dentists, like physicians, must have facilities by which to earn a living while getting postgraduate training.

The American Board of Periodontology has devoted its activity since its organization in 1940 to the certification of periodontists who have been in practice for ten years or longer and have established a reputation in their regions as experts in the practice of periodontia. A requirement of a one year postgraduate training course plus five years of practice was supposed to apply to all after January 1, 1944, but this rule was impossible to enforce since acceptable one year postgraduate facilities in this field have not until this year

been available. At first the applicants for certification in periodontology were all so well-known to members of the Board, both from personal acquaintance and professional reputation, that little question arose as to eligibility. More recently many applicants have been unknown to members of the Board and the judging as to eligibility on the basis of application data, reference letters

Subject and Source Material on which Examination for Certification by the American Board of Periodontology is based. This represents two academic years (60 college semester credits) of supervised course work and clinical practice.

SUBJECT	SEM. CRED.	TEXT MATERIAL COVERING SUB.	AUTHOR	EDITION
Anatomy—Applied Gross				New Ed.
Anatomy (including growth)	2	Oral Anatomy	M. Diamond	In Press
Physiology of Bone	1	Bone	J. Weinman and H. Sicher	In Press
Applied Histology	2	Oral Histology and Embryology	B. Orban	1944
Pathology Review of Inflammation Degenerations and Injurious Agents	3	Any good general pathology		
Oral Pathology	2	Pathology of Oral Cavity	L. R. Cahn	1941
		or		
		Histopathology of Teeth and their Surrounding Structures	R. Kronfeld	1939
		Biology and Pathology of Tooth and Supporting Mechanism	Gottlieb, Orban and Diamond	1938
Oral Bacteriology and Mycology	1	Bacterial Infections with Spec. Ref. to Dent. Prac.	J. L. T. Appleton	1944
		Articles in Current Liter.	T. Rosebury and others	
Oral Physiology & Hygiene including Applied Nutrition	3	Dental Science and Dental Art Chap. 1-16	S. M. Gordon	1938
		Diet in Health & Disease Part I	A. F. Pattie	1945
		or		
		Applied Dietetics Part I	Frances Stern	1943
Diagnosis: Oral Diagnosis Treatment Planning		Oral Diagnosis with Suggestions for Treatment	K. Thoma	1943
Case History Taking Soft Tissue Lesions of Mouth	2	Oral Medicine	L. Burket	1946
Oral Roentgenology		Teeth and Jaws Roentgenologically Considered	H. A. Osgood	1929
Dental Practice Management	1	The Dentist and His Patient	Friend, Kudler, Lieb, Ritt	1945
Medicine	4	Internal Medicine and Dental Practice	Conroe, Collins & Crane	1942
Endocrine Relationships Allergic Manifestations Chemotherapy				
Psychosomatics		The Person in the Body	L. E. Hinsie	1945
Periodontology	4	Periodontal Diseases Current Literature	A. H. Merritt	1945
Related Dental Subjects				
Orthodontia	1	Principles of Orthodontia	J. A. Salzmann	1943
Occlusion	1	Development of Occlusion	Gregory, Broadbent and Hellman	1941
		Cur. Liter. Art. on Occlusion	Schuyler, Sorrin, McCollum, McLean	
Mouth Rehabilitation	1	Cur. Liter. Art. on Mouth Rehabil.	Seides, Schweitzer, Kazis, Kohn, Neurohr	
Clinical Practice	32	Periodontia 16 cred., Orthodontia 4, Restor. Dent. 12		

from other periodontists, and three case reports has been difficult and unsatisfactory. The first written examination will be held in June for candidates who have been held over, because the Board was not completely satisfied by the data submitted that they were in fact expert in the practice of periodontia. A clinical oral examination is planned for late in July. The written examinations will be prepared and sent sealed to Board members and selected diplomates of the Board who will conduct examinations at one designated time in several cities wherever the candidates are. The clinical oral examination will be conducted by Board members in selected dental schools by arrangement with those schools. The certification fee for those applying after July 30, 1947 will be $100.00, the increase being due to expenses which will be incurred by members of the Board in travelling for the giving of examinations. After that date also, the case report requirement will be raised to fifteen case reports.

The subject for debate at this time is the content of matter which is comprised in periodontology, which should be presented as course material in postgraduate institutions and on which the Board examinations should be built. This is a matter on which your leader has strong opinions not always completely shared by other members of the Board. It is hoped that this discussion may bring out many points of view to the end that when the detailed course and examination requirements are incorporated in the By-laws of the Board they may represent the views of the majority of the members of the American Academy of Periodontology.

The subject matter to be detailed is that which might be comprised in a two academic year postgraduate curriculum in a dental school. It will be some time before such courses are generally available but books are available and these will be listed with chapters so that candidates may know exactly what will be required in written and oral examinations. It is the intention of the Board to base the examination in June on this material although the examination will not be made so searching and difficult at this time as in the future when postgraduate curricula covering it are available.

Discussion

R. GORDON AGNEW, M.SC., D.D.S., PH.D.
Toronto, Canada

I feel that the bases for certification in periodontology must be broad, comprehensive, and exacting, even though there is, as yet, a paucity of postgraduate educational facilities in this field. Adoption, at this time, of any system of requirements in this specialty will tend to be determinative of the status of periodontology in the profession itself and in the thinking of the public; further, it will inevitably influence educational institutions contemplating specialty training. The acceptance of bases of high standard need not operate unfairly to the candidate now seeking certification in view of your interim plan covering carefully selected references to appropriate literature, and in view of existing opportunities for clinical instruction, observation, etc. Naturally, the degree of difficulty of the examinations and tests given will increase as formal instruction becomes more readily obtainable. A fifteen case report requirement is not unreasonable.

The subject list suggested would seem, on the whole, well chosen and comprehensive. Under "Pathology, general," I would

include a degree of familiarity with neoplastic change beyond the usual undergraduate limits. Under "Diagnosis," I would specifically mention familiarity with routine laboratory diagnostic procedures and with some special tests. Under "Related Dental Subjects," in view of possible interrelationships I would include a brief consideration of chemical and histologic findings in present-day research in dental caries.

Under "Clinical Practice," I would suggest, in view of the frequently close relationship of periodontal disease with systemic conditions, a requirement covering a minimal period of hospital service (unless such experience has been secured in an undergraduate curriculum or otherwise obtained). While recognizing the very great importance of harmonizing restorative procedures with periodontal needs and of the rehabilitation of the mouth as a whole, I would consider the suggested relative proportion of credits in "Restorative Dentistry" perhaps slightly high, in view of existing emphases in restorative technics today.

I would suggest, as an additional subject —"Public Health Aspects of Periodontal Disease". In addition to the texts listed, I would recommend the preparation of a list of recommended collateral reading.

M. MONTE BETTMAN, D.D.S.
Portland, Oregon

The activities of the Board of Periodontology as it has functioned up to the present time have been outlined in the "Initial Statement". As facilities for postgraduate instruction are provided by more dental schools, it will be the function of the Boards for the certification of specialists to raise their requirements so that certification will come to mean that the diplomate is really an expert in all phases of his specialty.

In my opinion, requirement for certification in periodontology in the future must include a sufficient number of years of clinical practice in general dentistry so that the applicant for examination is able to properly plan and evaluate all phases of restorative work. He must also have had instruction in diagnosis, treatment planning, and practical clinical practice in periodontology. These courses of instruction can only be given adequately under supervision of a recognized dental school.

The applicant for certification by the Board of Periodontology must present data showing that he has completed a course such as outlined and must, in addition, submit to a written examination covering all phases of periodontia practice. He must pass also an oral examination which will prove to the Board his expert ability to properly treat periodontal diseases, so that the profession and the public may have full confidence in a diplomate of the Board as possessing all the qualifications that the certification implies.

A. W. BRYAN, D.D.S.
Iowa City, Iowa

The discussion leader states toward the close of his initial statement that the subject for debate at this time is the matter which should be presented as course-content in postgraduate work for those wishing to prepare for specialty board examinations in periodontology. Before discussing the tentative schedule presented by Doctor Leonard, I feel constrained to refer briefly to his opening statements concerning the temporary minimum requirement to which the Council on Dental Education is giving attention in its effort to assist the specialty boards. It seems to me that it is going to be difficult to set up a predetermined graduate or postgraduate requirement that will fit all applicants to such courses. Is it not true that there will be, for years to come, wide variations in the basic training of applicants? Reports of the Council on Dental Education show a steady increase in the number of students entering dental schools with four years of liberal arts work, or with a bachelor's degree, or even with a master's degree. Many of these degrees are earned on the basis of science majors and the question that arises is,—if two years of graduate work is determined as necessary for the student who entered with minimal requirements, should the student with the higher qualifications be required to do the same amount of work?

Another factor comes to mind regarding the two year requirement for specialty board examinations. I believe the standard requirement in graduate colleges for the master's degree is about thirty semester hours of credit, there being some difference between those cases submitting a thesis and those

who do not. Even though some applicants may have had such work, with or without science majors, should they still be held to strict compliance with schedules set up by specialty boards, for the remaining year of work, especially if the year of graduate work has been supplemented by much practical experience? I know that these opening statements may appear to be a crossing of the bridge before it is reached, yet I do believe that members of the specialty boards should give much thought to them in their coöperation with the Council in arriving at a permanent standard.

Considering the course content for the two year curriculum as outlined by the leader, I am still confronted by some of the questions raised in my previous remarks. How much science training did the student bring with him into his dental course,—has he already taken some postgraduate or graduate work and earned a master's degree, —has he just completed his dental course or has he been in dental practice for some time? All of these factors have a direct bearing on the subject matter needed to train him for a specialty.

It seems to me that the leader has listed courses in those subjects very definitely needed in the preparation of the graduate student for specialty work in periodontia. However, this thought immediately comes to mind. Practically all of the texts listed are the ones currently used in good dental schools for undergraduate instruction. Assuming that many of the graduate students who enroll will have just been graduated from dental schools, can two years time be profitably spent unless teachers are able to use other and unfamiliar material? If that can be done the time spent will be justified, but even now complaints are not infrequent from those taking recent postgraduate courses that there was much "time-marking" and rehashing.

On the basis of a two year requirement it seems that the proportions of study in the subjects listed are reasonably balanced. If the stress were to be changed in any way I would suggest that additional emphasis be placed on pathology, diagnosis, interpretation of roentgenograms, and nutritional and endocrine relationships to oral disease.

Under present circumstances, since courses of even one year are not extensively given, the American Board of Periodontology is faced with determining the standards to be used until facilities for education are developed. It seems reasonable to expect the candidates should be able to pass a written and oral examination in the basic material covered by the subjects listed. Until formal instruction is available I believe the Board will need to depend to a great extent upon evidence of practical experience, attested by the submission of case histories. A requirement of fifteen cases is not unreasonable.

IRVING GLICKMAN, D.D.S.
Boston, Massachusetts

In all professional disciplines improved standards of attainment have developed from evolutionary educational processes. Dr. Leonard's "Initial Statement" on the "Preparation for Certification in Periodontology" constitutes a contribution to the evolutionary development of standards for the training of experts in the practice of periodontia. This statement recognizes a need for improvement of present criteria for the qualification of experts; it suggests that institutional postgraduate training needed for the preparation of such experts is not yet generally available; and offers a reading list as a transitional structure to serve as the basis of examinations until such time as other preferable educational facilities are more generally developed. The commendable aims expressed in this statement and its logical evalution of the present status of the problem of certification in periodontology encourage constructive discussion of the major question it raises as to the content of postgraduate education in periodontology upon which the Board examinations should be built.

The real goal of the American Board of Periodontology should lie not within the limited sphere of setting up requirements for certification, but rather in the more comprehensive function of stimulation and guidance of educational agencies in such directions as will achieve maximum qualitative improvements in postgraduate training. In the former and possibly less important role the Board would exist merely as a final barrier to be overcome by aspirants for certification; in the latter capacity the Board will become an important construc-

CHART I—CURRICULUM OUTLINE

I *Background Sphere*	Anatomy and Histology of the Oral Cavity and Associated Structures	Principles of Physiology. Function and Structure. Metabolism, Endocrines, etc.	Principles of Nutrition, including tissue repairs. Biochemical alterations. Dietetics	Principles of Pharmacology. Tissue response to drug and physical therapy. Chemotherapy.	Principles of general pathology. Inflammations, degenerations, repair neoplasms, etc.	Principles of General Bacteriology with emphasis on pathogenicity and humoral and cellular defenses.	Principles of General Surgery	Principles of Internal Medicine. The Case History. Laboratory Medicine. Psychosomatic Medicine. Dermatology.	Principles of Instrumentation. Historical Background.
II *Periodontal Sphere*	Histology of the periodontal tissues. The development of the jaws. The radiographic appearance of the periodontium.	Function in relation to the maintenance of the periodontal tissues. Physiology of mastication. Calculus formation.	The oral tissues in nutritional disturbances, with particular attention to the periodontium.	The response of the periodontium to local and systemic drug therapy.	Histopathology of periodontal disease and oral pathology. Review of Experimental studies pertinent to periodontal disease.	Oral Infection. Bacteremia and periodontal infections. The role of bacteria in periodontal disease. Allergy.	The repair of periodontal tissues in response to various therapeutic, surgical, and other treatment procedures.	Specific relationships of the periodontal tissues and systemic disease. Oral manipulation of dermatological disturbances.	Selection of therapeutic technics in relation to clinical pathology.
III *Clinical Sphere* Prevention, Diagnosis, and Treatment	The X-ray as a diagnostic aid. The inter-relation of orthodontic and periodontal treatments.	Evaluation of correctional occlusal trauma. Mouth rehabilitation. Prosthetic appliances and the health of the periodontium. Splinting.	Applied treatment in periodontal practice.	Local and systemic drug and physical therapy in periodontal treatment.	The interpretation of clinical periodontal pathology in terms of underlying microscopic changes. Local oral factors and periodontal pathology.	Oral hygiene. Chemotherapy in relation to oral infection.	Surgical procedures in periodontal practice.	Periodontal Recording. Laboratory tests in periodontal practice. The interdependence of systemic and local influences in the prognosis of periodontal treatment.	Sequence and evaluation of mechanical therapy. Mechanical measures in periodontal prophylaxis.

tive influence upon the development and progressive elevation of periodontal practice.

The primary prerequisites for a postgraduate curriculum in periodontology is the correlation of knowledge and its application in the prevention, diagnosis, and treatment of periodontal disease. In the establishment of such a curriculum extreme caution must be exercised lest direction and application be lost in an abundance of non-correlated facts. The history of education serves warning that increased quantitative requirements are not always synonymous with qualitative improvements in training. Periodontology has advanced beyond the stage where it should be overwhelmed by the novelty of newly revealed information. It is now challenged to examine such information with mature wisdom and apply it in the control of periodontal diseases. A qualified expert should be marked not only by an accumulation of information but more particularly by a capacity to interpolate such information into periodontal practice. The Board is, therefore, obligated to establish such requirements as will be consistent with the expanding inter-relationships of periodontal practice with other phases of dentistry and medicine and recent advances in biological science.

In the postgraduate periodontal curriculum the particulars peculiar to the periodontal structures must be pyramided upon a base of generalities afforded by the sciences, fundamental or applied, which are basic to dentistry and medicine. The detailed principles underlying periodontal practice should be delineated from the fundamental generalities without sacrifice of the comprehensive scope such generalities entail. To attain this end the curriculum should be divided into a sequence of three main spheres:

Sphere I. Background Principles.

Sphere II. Evaluation of the Periodontal Area in Terms of These Principles.

Sphere III. Clinical Application of Special Knowledge in the Prevention, Diagnosis and Treatment of Periodontal Disease.

The diagrammatic framework of such a curriculum is outlined in Chart I. (Inclusion of all possible details is not attempted.) Although, of necessity the curriculum prescribes division into definite spheres, it should permit sufficient flexibility to afford continuity and correlation of training. Provisions should also be made whereby students with special interests and demonstrated capability would have access to facilities and guidance for the pursual of their own original projects in the clinical field. This arrangement on an elective basis would be an added incentive to constructive original thinking and the critical integration of didactic training.

Examination of Chart I in a horizontal direction reveals the three major curriculum spheres. Examination in a vertical direction pointedly clarifies the interdependence of the various clinical phases of periodontal practice with the preceding correlated didactic training.

In the above program, the clinical management of periodontal problems should encompass the crystallization of the integrated curriculum. The case history requirement established by the Board in the future will, therefore, serve several unified purposes. First, it will enable the Board to evaluate the response of the applicant to his formal education after it has been enhanced by extensive experience. Second, it will place the Board in an especially unique advisory position in relation to the postgraduate educational agencies by affording them valuable indices of the effectiveness of their progressive curricular developments. Third, it will enable the Board to evaluate the level of periodontal care to be offered the public. In view of these considerations, qualitative criteria may afford a significant additional guide to quantitative standards in formulating the case history requirements of the Board. Evaluation of published contributions to the literature should reveal additional information regarding the applicant.

In the light of the curriculum presented above, preparation of a list of subjects which are to serve as a transitional substitute for institutional training is revealed as a challenging task. Several suggestions which evolve from the postgraduate curriculum outlined above may be submitted for consideration.

If 10 semester credits are assigned to Anatomy, Histology, and General and Oral Pathology, then Oral Bacteriology and Mycology might reasonably be increased to 3 credits. If the biological implications of

bacterial activity in relation to host response are to be included, even additional credit may be justified.

Principles of Nutrition might be assigned 3 credit semester hours to be devoted to biochemical fundamentals, with an additional 1 credit assigned to dietetics.

If Oral Diagnosis is to include Treatment Planning, Case History Taking, Soft Tissue Lesions of the Mouth, and Oral Roentgenology, it might warrant at least 6 credit hours since these are keystone structures in the applied science of periodontal practice.

Medicine might include some provisions for the evaluation of laboratory procedures as they apply to periodontal practice with credits allowed as follows: Medicine 3, Laboratory Medicine 1.

Principles of Surgery and Principles of Pharmacology might appropriately be added to the list with 1 credit assigned to each.

To compensate for an increase in semester credits resulting from these suggestions, Orthodontia and Restorative Dentistry might be reduced to 2 and 8 credits respectively.

The difficulty of providing adequate source material to form an assigned reading list is almost prohibitive when one recognizes that such material will be devoid of the vital scrutiny of guided analysis. Economies effected by avoiding the duplication of material contained in text books devoted to subjects which partially overlap each other might profitably be diverted to the study of the pertinent literature covering the last 5 years. The journals of Periodontology, American Dental Association, Dental Research, American Medical Association and British Dental Journal could be specifically assigned for this purpose. In addition to serving as an important source of information, study of the literature would stimulate habits of critical reading and recourse to recent advances which should be a *sine qua non* of any specialized practice.

It is apparent that this discusser is in accord with the broad scope of postgraduate periodontal training which Dr. Leonard proposes in his "Initial Statement". It is understandable that institutional facilities to provide such training are not as yet generally available. However, developments in the required direction are in progress. The steps already taken by some institutions are most heartening.

It might therefore be advisable to limit the significance of examinations based on reading material as standards for qualification at this time and encourage the acquisition of such institutional training as is progressively becoming available. In addition to enhancing the training to be derived from a reading source, the latter procedure would encourage institutions in the direction of improving postgraduate facilities. The Board is in a position to foster the maturation of postgraduate education in periodontology by suggesting that while examinations built on reading material constitute an acceptable requirement for qualification, special consideration would be given the successful completion of representative institutional courses.

HOUGHTON HOLLIDAY, D.D.S.
New York, N. Y.

I am pleased to comment on the matter of Certification for Specialization in Periodontology.

I am gratified that the Council on Dental Education is lending a hand in developing and regulating postgraduate education. It would be unfortunate if the old order were to continue whereby any one might set himself up as a specialist without having had training beyond that required for the general practitioner. The public would be almost as much in the dark when endeavoring to avail itself of the services of a specialist if the requirements for certification in the various specialty fields were left to the legislatures in each of the forty-eight states. The definition and preparation of a specialist must not mean one thing in one state and something else in the next. The Council is in an excellent position to help place specialization on a uniform and high standard.

By setting up rigid and comprehensive requirements that can be met only by the practitioner closing his office and returning to school for a period of two years, we shall make it impossible for a large number of capable and experienced men to qualify as specialists. On the other hand, the requirements must not be so flexible and easy of attainment that recognition will be sought as an honor rather than as a guaran-

tee to the public that the holder is really qualified as a specialist and has had experience and training beyond that required of the general practitioner, and is conducting a specialized practice. The answer seems to be to set up a table of Source Material as is being proposed for the Board in Periodontology. Such a table must of necessity be revised frequently, and the Board would be expected to give added weight to clinical experience and case reports in the case of established practitioners, and added weight to formal training in the case of younger applicants.

I have no suggestion to offer in regard to the content or distribution of credits in the Source Material providing it is the intention to alter and add to it as time and experience dictates. Presumably the 16 credits suggested for clinical practice in periodontia would presuppose some knowledge of, and experience in, surgical treatment. I believe it would be desirable to include also some references dealing with the principles of surgery.

HARRY LYONS, D.D.S.
Richmond, Virginia

The "Initial Statement" on "The Preparation for Certification in Periodontology" comes at a time when we are studying the problem of postgraduate residency training in periodontology for the Veterans Administration. They have authorized the establishment of a pilot program in this phase of dentistry to be conducted at the McGuire Hospital here in Richmond, Virginia, under the direction of the Medical College of Virginia, School of Dentistry. Among the objectives of this and similar projects in the various phases of medical practice, is the preparation of the residents for their respective Specialty Boards.

Inquiries concerning the residency training programs in the various phases of medical practice reveal that they have no *formal* program for the study of theory such as suggested in the "Initial Statement" patterned on the undergraduate type of program with a schedule of semester hour credits, etc., etc. This is done only at a few schools where *graduate* courses, mainly in the basic medical sciences are offered, leading to *graduate* degrees. This, however, is an altogether different type of program from the *postgraduate* training program in preparation for certification by the Specialty Boards. It is, of course, possible to extend and combine the two programs but this is not the problem under discussion.

The suggested program of semester hour credits appears to me to be open to question. I assume that the proposed credits in clinical practice are on an hourly basis, since they are not noted to the contrary. Accordingly, the schedule calls for only four (4) hours per week of clinical practice in periodontia. This is hardly adequate for the development of clinical skill in this specialty. More fundamental than this and other details is that the basic program itself is patterned on an undergraduate academic type of program. I do not feel that postgraduate residency training should be made to conform to the prevailing design of academic or under-graduate dental programs.

The under-graduate dental curriculum may be described as one starting with the basic sciences and building up to the patient. A postgraduate residency training program may well be described as one starting with the patient and digging back into the basic sciences from the clinical approach. In the medical residency training programs this is done through ward rounds, clinics and conferences, with the trainee stimulated to dig back into the basic sciences in working up his cases and case reports. This presents itself as the more interesting approach for the more matured mind of one beyond the under-graduate level. The program suggested in the "Initial Statement" is likely to be too much in the nature of a review of under-graduate theory, and a review program can hardly be said to be interesting or inspiring, neither does it stimulate the "searching" type of study.

Another important point to bear in mind is that postgraduate training in periodontia cannot be carried on in most hospitals nor is it necessary that it be. Of course, some training in the study and periodontal care of hospitalized patients is essential. However, unless the hospital is one caring for patients who must be hospitalized over a long period of months or has a large outpatient department, the right sort of material for training in periodontia is not available. Furthermore, the attending staff

must be adequate for supervision, guidance, and conference programs. It would appear that postgraduate training in periodontia might preferably be carried on in dental schools where university relationships with medical schools and hospitals prevail. In such a situation, the dental teaching staff, the science laboratories, and hospital facilities, are all available. Trainees might be placed on a fellowship basis and utilized as parttime teaching adjuncts or research assistants to justify salaries for maintenance. The American Board of Periodontology and other dental specialty boards might honor college certificates granted such trainees, in partial fulfillment of their requirements for certification by these boards. The merits of such training would have to be judged and accredited by the Council on Dental Education on a basis comparable to that which they now employ for their under-graduates.

The American Board of Periodontology would supply an important guiding influence by announcing the subjects on which it proposes to examine its prospective diplomates. A reading list such as suggested would also be helpful. The subjects of anaesthesia and pharmacology might be added.

JOHN OPPIE MCCALL, D.D.S.
New York, N. Y.

I appreciated greatly having an opportunity to read the statement "In Our Opinion," discussing "Preparation for Certification in Periodontology."

I have followed closely the evolution of specialization in dentistry, not only in periodontia but in other branches as well. Growth has been quite satisfactory but further steps of a more formal nature, as in the case of orthodontia, are needed, and as rapidly as is feasible.

I agree with the principles enunciated in the statement—Periodontists need study and training in the biologic branches and in oral diagnosis. The outline set up as the basis for the certifying examination is quite inclusive in that respect. I think, however, greater emphasis should be given to oral tumors and neoplasms than is implied in the list. These disorders may at times come first under the observation of periodontists, patients seeking their services under the impression that their difficulties are manifestations of periodontal disease.

Serious thought must be given to the matter of subsistence for dentists who want to qualify for the periodontia certificate and who usually must forego or give up practice while following the schedule of graduate instruction set up. This is particularly important if they are unable to arrange the schedule on a part time basis, with the remainder of the time devoted to practice.

I think we should study carefully the way the program for specialties in medicine is set up. In most instances the medical graduate, after the routine year of internship, goes on to residency with a series of promotions until he is prepared to try the specialty examinations. During all this time he receives maintenance and a slowly rising salary besides. He sometimes may carry on a parttime practice which will give him some of the required credits. He usually pays no tuition during this time.

The medical specialty program is almost if not entirely carried on in the hospital, in which all branches of medical care are given and for which facilities are provided. Few hospitals today provide dental facilities or instruction in any field except oral surgery; even in that branch opportunities for extended graduate instruction are limited.

At the same time, a suitable hospital setup in periodontia is feasible and, from the standpoint of many hospital patients, is desirable. I am not thinking here of a dental hospital, as advocated by some in our profession, but a properly developed dental division in a teaching hospital.

If specialty training in periodontia is not given in the hospital it must be given as postgraduate or graduate training in a dental school which has suitable facilities for training in the dental and also the biologic phases, the latter implying suitable medical coöperation. Can we, in addition to assuring those facilities, set up also the equivalent of the internship and residency, with reasonably adequate salaries for the candidates while they are earning the necessary credits?

I think the forthcoming examination may properly be based on the books listed. In that connection I think Miller's *Textbook of Periodontia* should be added to Merritt's *Periodontal Diseases* in the section on Perio-

dontology. Also I question the need for including *Development of Occlusion* in the section dealing with that subject. I think Salzmann's book is entirely adequate to meet the periodontist's needs in that field.

I am not clear as to whether the candidate is to treat a patient or patients before the examiners. I think this is very important, particularly in demonstrating a knowledge of occlusal needs and the ability to equilibrate an occlusion. Demonstration of ability to do proper subgingival scaling might well be required also.

I am not in favor of requiring fifteen case reports at present. I believe five will be satisfactory. My idea is that few candidates will have the opportunity to bring together fifteen cases representing any considerable variety of basic conditions. I am thinking particularly of the younger men whose opportunities will have been limited at the time they wish to qualify.

ARTHUR H. MERRITT, D.D.S.
New York, N. Y.

The course of study preparatory to certification in periodontology as outlined by Dr. Leonard may well serve the purpose for which it was intended, namely, that of a guide to further study. The problem of postgraduate instruction in periodontology is too complex to be solved without careful study on the part of many. Hence the initial statement by Dr. Leonard. With a few possible changes in detail it may well serve as an excellent program for postgraduate education in periodontology.

The next step is obviously that of making available courses of instruction for those wishing to qualify for certification. This will doubtless follow demand.

Meanwhile, the one year postgraduate training course with the addition of fifteen case reports, plus five years of practice as suggested by the American Board of Periodontology should be made the requirements for certification in periodontology.

DANIEL E. ZISKIN, D.D.S.
New York, N. Y.

I have read with interest the proposed postgraduate course of study for prospective specialists in the field of periodontia. I am glad of an opportunity to comment on its provisions.

I shall confine myself to a discussion of the "Subject . . . Material on which Examination for Certification . . . is based . . ." and on which the credit distribution is given roughly as follows:

Basic Sciences—14 credits

Didactic Instruction in Clinical Subjects —13 credits

Restorative Dentistry—12 credits

Orthodontia Technique and Practice—4 credits

Practice Management—1 credit

Periodontia Practice—16 credits

Out of a total of 60 semester credits, covering a period of two academic years, only 16 credits are assigned to periodontia practice. In planning for the training of a specialist in a clinical phase of dentistry, I believe a large portion of his program should be devoted to the clinical practice of that specialty. If the time represented by 16 credits would constitute an adequate grounding in the field of concentration, then it is possible that the course could be given in one year instead of two. In that event, the basic science hours would likewise have to be cut in order to balance the curriculum.

Furthermore, whether the course be one or two years, I can see no justification for requiring 12 credits in restorative dentistry practice—almost as many credits as in the major subject. If a periodontist were to engage in the practice of restorative dentistry to the extent indicated by the credits suggested, then actually he would be a general practitioner with a leaning toward periodontia rather than a specialist. I even question the advisability of including any work at all in this department. We must assume that candidates for certificates of proficiency in periodontia already have a sufficiently comprehensive experience in restorative dentistry to enable them to recognize its relevancy to certain problems affecting diseases of the periodontium and to enable them to refer patients when such procedure is indicated. What more is necessary?

Similarly, I do not believe that a cultural understanding of orthodontia practice and technique such as would be of value to the periodontist need occupy the time represented by 4 credits. This requirement might well be cut in half.

In addition, I would suggest that the candidate be held responsible for a certain

amount of material embodied in courses such as logic, biostatistics, and scientific methods, so that he may be better prepared to appraise his practice critically, to evaluate properly all forms of so-called scientific dental literature, and to apply to the problems presented by diseases of the teeth and their supporting structures the biological concepts stressed in the basic sciences as well as those concepts of a mechanical nature.

Finally, it seems to me of utmost importance that passing grades be required of all candidates for certification in written and oral clinical examinations covering all the material in the course of study. The standards should be set at a high level immediately, even though this may mean that only a limited number of men can qualify, rather than run the risk of loading the profession with a large group of mediocre practitioners—specialists in name only.

(Discussion Continued in the July, 1947 Issue)

THE TIME BETWEEN the meeting of the Council on Dental Education on February 7th at which the standard preparation for dental specialists was adopted and the editorial deadline for getting "In Our Opinion" to press in the April issue was too short to give opportunity for many who should contribute to this discussion to do so at this time. The "Initial Statement" was sent to twenty-one persons, members of the Board, members of the Academy, and prominent dental educators especially concerned in postgraduate work. Several were unable to contribute due to lack of suffcient time and several have not yet replied which probably means that their contributions will come later. I believe this subject should remain open not only for further contributions to be published in the Journal but also for letters which should be sent to members of the Board not for publication, but for the enlightenment of the Board on the thoughts of periodontists and other interested persons, on this subject. Decisions on it involve the content of the science and art of periodontology, the preparation of specialists in it from now on, and the postgraduate program in the dental schools. These decisions are therefore most important to periodontists, future periodontists, the Board, and dental educational institutions.

—HAROLD J. LEONARD

Seventh Postgraduate Program for

THE AMERICAN ACADEMY OF PERIODONTOLOGY

Sponsored by

UNIVERSITY OF MINNESOTA SCHOOL OF DENTISTRY

and

THE W. K. KELLOGG FOUNDATION INSTITUTE

Center for Continuation Study

University of Minnesota, *Minneapolis, Minnesota*

April 14, 15, 16, 1947

Monday, April 14

9:00—Registration.

9:15—Greeting

DEAN WILLIAM H. CRAWFORD
School of Dentistry
University of Minnesota

9:30—Rheumatic Heart—Bacterial Endocarditis

B. J. CLAWSON, M.D., PH.D.
Professor of Pathology,
University of Minnesota

An analysis of these two types of hearts in the autopsy material in the University, years 1910-1941, inclusive. Dr. Clawson will attempt to make applications to dental practice.

1:30—Blood Dyscrasias

A. J. HERTZOG, M.D., PH.D.
Pathologist, Minneapolis General Hospital
Assistant Professor of Pathology,
University of Minnesota

Color slide illustrated discussion of the fundamental aspects of the anemias, leukemias, and hemorrhagic diseases, with emphasis on the importance of particular phases of the blood dyscrasias to dentistry.

3:00—Nutrition and Periodontal Disease

ISAAC SCHOUR, D.D.S., PH.D., SC.D.,
Dental School, University of Illinois,
Chicago

Relationship between gingival and periodontal disease and the nutritional status of the individual.

7:00—Index of Assessment of Investing Tissue Disease

ISAAC SCHOUR

Discussion of the need for more accurate objective methods of assessment as a means to promote further progress in diagnosis and treatment.

Tuesday, April 15

9:00—Experimental Breast Cancer in Mice, Its Causes and Control

JOHN J. BITTNER, PH.D.
George Chase Christian Professor of Cancer Research;
Director of the Division of Cancer Biology
University of Minnesota

10:30—Experimental Leukemia

ARTHUR KIRSCHBAUM, M.D., PH.D.
Associate Professor of Anatomy,
University of Minnesota

1:30—Normal and Pathological Physiology of the Parathyroid Glands

F. RAYMOND KEATING, JR., M.D.
Instructor in Medicine, Mayo Foundation
Consultant in Medicine, Mayo Clinic, 1942 to present date.

Presentation of the fundamental function of the parathyroid glands in relation to the metabolism of calcium and phosphorus and their effect upon the bones and teeth, with some mention of the consequences of parathyroid insufficiency.

3:00—Hyperparathyroidism

F. RAYMOND KEATING, JR.

Presentation of the present status of the condition known as hyperparathyroidism and its general clinical manifestations, of which the dental findings are especially interesting.

5:00—Social Hour, Dinner, and Speaker

(Place and speaker to be announced.)

Wednesday, April 16

9:00—The General Problem of Geriatrics and Gerontology

EDWARD L. TUOHY, M.D., F.A.C.P.
Chief in Medicine, Duluth Clinic,
Duluth, Minnesota
Certified American Board Internal Medicine in Cardiology

Definitions: Our aging population. The drift toward urban centers; not only the industrialization in the sense of mass production of everything we use and work with, but the industrialization of agriculture as well. The soil, its use and abuse. Tracing the importance of food in maintaining the production necessary for feeding our population just for living; and the added increment necessary to maintain the forced production that makes our economy click: an endless chain of interdependence.

10:30—Psychosomatic Medicine

BURTRUM C. SCHIELE, M.D.

Discussion of the effect of fear, anxiety, and inferiority complex upon the organs and functions of the body.

1:30—Aging and the Teeth—The Physiology of Aging Apart from Disease

EDWARD L. TUOHY.

Known factors in decay and senescence. The importance of food habits and "learning to grow old gracefully." "The mouth as a barometer of health," the teeth as an evidence of hereditary fortune and to some degree individual pride in fitness. Functional aging as evidenced by the accidents of pregnancies in middle life, and full sustenance of mental vigor and creativeness late in life as evidenced by Michelangelo, Puccini, G. B. Shaw, and Thomas A. Edison. The welfare problem of artificial dentures for recipients of old age assistance. The diseases common among the old that are the background of mouth deterioration (gums, tongue, fauces, and mucous membranes).

Editorials

MOUTH HYGIENE

IN RECENT years, various writers on dental subjects have been inclined to discredit the efficiency of mouth hygiene for combatting dental caries. This has been especially true of those writers who favor the sugar theory in the etiology of tooth decay. The latest word on this comes from the Council on Dental Health in a "Statement on Control of Dental Caries" which appeared in the *Journal of the American Dental Association* (34(7):502-504. April 1, 1947). This formal presentation of conclusions reached after "several years of careful study" should be thoroughly studied by all dentists, periodontists in particular, for they are constantly made aware of the effects of proper or indifferent home care of the mouth and are continuously appraising the results.

The Council on Dental Health in its "Statement" claims, "In most instances, the proper use of a satisfactory toothbrush, a safe dentifrice and dental floss followed by a thorough rinsing of the mouth with water immediately after eating will assure maximum benefits, *but the effectiveness of this procedure in the control of tooth decay has not been established.*"* Dr. D. D. Smith of Philadelphia, who perhaps more than anyone else applied fully and persisently over a period of years the principles of oral prophylaxis, claimed that he could prevent 90 per cent of dental caries for his patients by controlling the environment of their teeth. He demanded complete coöperation from his patients in home care. There appears to be a wide divergence of opinion as to the value of mouth hygiene in the control of dental caries. At this point we are left hanging in the air.

If the effectiveness of mouth hygiene in the control of dental caries has not been established, is it not time that something definite is done to correctly evaluate it. Otherwise, are we to discount much of the literature of the past forty years dealing with this subject? And are we to question the intelligence and honesty of Smith, Fones of Connecticut, Ebersole of Cleveland and many others who were fully convinced that mouth hygiene could prevent a considerable amount of tooth decay? Scientific proof may be lacking, but we cannot ignore the statistics that have been offered as proof from time to time, to illustrate its value, or the observations of many hundreds of individual practitioners who agreed with these men because of their personal experience in such practice.

Viewed from another angle, are we not inconsistent when on the one hand we encourage the education of more dental hygienists whose chief function is to prevent dental caries by means of mouth hygiene while on the other hand we officially pronounce that the effectiveness of this procedure has not been established? The basic tenet of the movement for the training and licensing of the dental hygienist has always been that cleanliness of the mouth was an important

* *Italics* not in original

measure for preventing dental caries. Is her function to be limited to *finding* cavities and to doing for the patient what he should have done for himself? If we really doubt the efficacy of mouth hygiene as a preventive of dental caries we should discontinue toothbrush drills in the schools and other related activities.

Knowing as well as dentists do the indifference of human beings when it comes to matters of their own health we cannot expect many to change in regard to their teeth. Prevention of dental caries will probably not become universally practiced until it is offered in the form of a pill or a potion. Mouth hygiene is like religion in that it must be practiced by the individual to be effective. The patient himself must keep his own teeth free from *all* soft deposits especially at the gingival margins and on the proximal surfaces. The interproximal spaces must also be kept clean by whatever means is best for the individual case. Since an unhealthy mouth cannot be kept clean by a patient and healthy mouths are not the rule, it is quite understandable that doubt has arisen about mouth hygiene as a dental caries prophylactic. Then too, only about one-fourth of the population of our country attempts to clean their teeth at all. Of this number probably one per cent cleans them effectually. Filthy mouths are seen in all grades of society. One patient in consultation stated to the writer that if he had to take care of his teeth in order to save them he would rather have them out. He was thirty-eight and had a beautiful set of teeth with periodontal disease in an advanced stage.

The etiology of rampant dental caries is not considered in this discussion as it is usually concerned with psychosomatic, nutritional, or systemic factors and mouth hygiene alone could not control it. One gets involved when attempting to discuss dental caries for the reason that there are apparently different types of the disease, and only confusion results when they are discussed without differentiation.

This is an important subject and periodontists, because of the nature of their practice, could make a valuable contribution to it. They are treating adult patients who *must* keep their mouths clean in order to save their teeth. Contrary to general opinion, patients with periodontal disease do often have many fillings and one or more cavities when they come for consultation. Patients' susceptibility to dental caries should be noted and an accurate record kept of the effect of mouth hygiene in all cases. Also contrary to general opinion periodontists are able to observe cases over a period of many years and those years the last thirty or forty of the patients' life.

If all dentists could limit their practices to patients who keep their mouths perfectly clean, this would answer the question of how much value is mouth hygiene in the control of dental caries. —G. R. S.

REQUESTS FOR BACK ISSUES OF THE JOURNAL OF PERIODONTOLOGY

There are a number of requests for complete files of the Journal. We are unable to supply the following issues: JANUARY, 1930
JANUARY AND JULY, 1933
JANUARY, 1941
JANUARY, 1944
JANUARY, 1945

If any reader has any of these copies he would care to contribute, will he please communicate with the Editor. The Academy is desirous of filling these orders, especially those from libraries.

Nutrition and Dental Health

Selected and Reviewed

By DOROTHEA F. RADUSCH, D.D.S., B.A., M.S., *Minneapolis 2, Minn.*

IODIZED SALT AND GOITER

RECENT statements in the lay press, that deficiency of iodine is not related to the causation of simple goiter and that giving of iodine to people in the goiter belts has not reduced the incidence of goiter, require prompt contradiction.

It is unfortunate that a physician, and one connected with a medical school, makes statements to the public unsubstantiated by scientific evidence. Coming from one with such standing, the views are accepted as truth, and results may be harmful to many.

In reference to this, the *J.A.M.A.* carried the following editorial in the March 1, 1947 issue (p. 620):

The Council on Foods and Nutrition of the American Medical Association, some time ago, adopted a general decision on the use of iodized salt in the prevention of goiter. The Council indicated its belief that iodine is an essential chemical element for normal nutrition and that an inadequate supply of iodine in the diet tends to the development of an iodine deficiency disease known as simple goiter. In its decision the Council emphasized its point of view that this is wholly a preventive measure and is not concerned in any way with the cure of goiter. It defined an accepted iodized salt as one containing not more than 1 part of sodium iodide or the iodine equivalent of any other suitable iodine compound to 5,000 parts of salt. Iodized salt containing more than this quantity is considered a medicament not to be advertised to the public for table or cooking uses.

At a meeting of the Council held in November 1946, the Council was informed that legislation would be introduced into the Congress designed to amend the Food, Drug, and Cosmetic Act so that table salt would be required to contain an amount of iodine equivalent to that specified in the general decision. The Council, therefore, recommended to the Board of Trustees of the Association that action be taken toward giving the support of the American Medical Association to such standardization of table salt. The Board of Trustees at its meeting in December 1946 approved this action of the Council.

In an article published in the *Ladies Home Journal* Senator Desmond of New York urged the Food and Drug Administration to standardize table salt in this manner, and Dr. P. B. Dunbar, Commissioner of Food and Drugs, rightly pointed out that the Food and Drug Administration cannot require that salt be iodized without adequate legislation. In this connection Mr. Alexander Falconer, secretary of the Salt Producers Association, said that the salt companies are willing and glad to aid by standardizing salt in the manner suggested but that it is illegal and impossible for them to agree among themselves to produce only table salt containing the requisite amount of iodide. He believes that the proper procedure would be continuous education by physicians and public health officials leading the public to use such salt.

In the midst of this drive toward aiding the prevention of simple goiter in the manner suggested comes an announcement by Dr. Isidor Greenwald of New York University College of Medicine of his belief that a deficiency of iodine is not related to the causation of simple goiter and asserting also that the giving of iodine to people in so-called goiter belts has not reduced the incidence of new goiter to zero. This extraordinary folly, unsubstantiated by anything resembling scientific evidence, has been circulated by Science Service. Moreover, one of the staff writers at Science Service has supported the statement by wide distribution in a syndicated column.

Physicians who have carefully followed the scientific literature on the subject will

naturally deprecate the unfortunate publicity given to the unsubstantiated views of Dr. Greenwald. The Council on Foods and Nutrition made its decision after careful study of the available evidence. The experiences in such states as Michigan and Ohio are sufficient to establish that the widespread use of additional iodine in the diets of growing children in areas where iodine is deficient in the soil is a most valuable technic for preventing a vast amount of unnecessary simple goiter. The fact that goiter still occurs occasionally in such areas may then be taken as evidence that standardization of table salt to contain the necessary iodine would bring about still further reduction in the incidence of simple goiter. *(Reprinted* by permission of Editor of J.A.M.A.)

THE LABILITY OF BONE

Reprinted from J.A.M.A. 133(2):110. Jan. 11, 1947, by permission of Editor.

The physical characteristics of bone are more obvious than its metabolic activity. The fact that bone is hard and rigid and appears so admirably to fulfill its mechanical functions is likely to turn attention from its capacity as a labile reservoir of mineral salts. Long before actual experimental demonstration the pathologist was aware of such abnormalities of mineralization or of decalcification as rickets, scurvy, osteitis fibrosa cystica and osteoporosis. More than a decade ago it was demonstrated that restriction of experimental animals to a salt poor ration not only reduced the proportion of total bone ash but actually altered the chemical composition of the salt deposited in the growing skeleton. The mobilization of minerals from the skeleton is influenced by certain of the hormones. The thyroid hormones have been used in the removal of lead from the body after lead poisoning; the heavy metal appears to be mobilized from the bone along with the calcium phosphate with which it was deposited. Again, the hormone of the parathyroid glands has a definite effect on bone calcium; deficiency of this substance results in hypocalcemia and a resultant tetany, whereas an overproduction of the hormone produces hypercalcemia and net losses of calcium and phosphorus, which salts come from the skeleton. The estrogenic hormones bring about a pronounced shift of bone salts from the symphysis pubis to the long bones in certain species, with the result that the breaking strength of these leg bones is greatly increased and the chemical composition of the bone salts is altered. Purely physical evidence of the intense activity in the femur as a result of the administration of estrogens has recently been reported; the X-ray diffractograms of sections of these bones show complete disorientation of bone salt crystals in the cortex. The same method of study has indicated that the faulty mineralization of the epiphysis in rickets is characterized by disorientation of the bone salt crystals and that this abnormal structure persists after clinical healing is complete. By means of a number of different chemical and physical experimental approaches it has been demonstrated that the skeleton is surprisingly labile; bone salts can be withdrawn from this reservoir under a variety of influences as well as deposited when circumstances are favorable. This fundamental concept has helped to explain certain clinical conditions and should be kept in mind in the therapeutic and nutritional approach to medical problems.

(Bibliography included in Editorial.)

THIRTY-FIRST
ANNUAL MEETING
American Academy of Periodontology
JULY 31—AUGUST 1-2, 1947
BOSTON, MASSACHUSETTS

ABSTRACTS OF CURRENT DENTAL LITERATURE

(Continued from 17(4):179, Oct. 1946)

(e) Symptomatology and Diagnosis

(Continued from 17(4):46, Oct. 1946)

393—Cummer, Clyde L.: **Leukoplakia (leukokeratosis) of the palate, papular form,** *J.A.M.A.* **132(9):**493-498, Nov. 2, 1946.

An interesting study with excellent illustrations, photographs of conditions and photomicrographs of biopsy specimens. The type of papular leukoplakia described, found on the palate, manifests itself differently from those of tongue or cheek mucosa and their diagnosis has thus often been missed. The clinical picture is striking. There are gray flat-topped papules or red hemispheric papules. The histologic examination reveals thickening of the epithelium with hyperkeratosis and dyskeratosis; elongation and thickening of the rete pegs and a degree of inflammatory change in the dermis. Practically all reported instances have been in men, mostly smokers, especially pipe smokers, and in some cases the condition has been cleared up by merely abstaining from smoking. In some, a protective denture covering the palate has been effective. Syphilis appears not to be an etiologic factor and in none of the rather small series of cases recorded has malignant change taken place.

—*Celia Rich*

394—Hobaek, A.: **Leukoplakia oris,** *Acta Odontologica Scandinavica,* (Stockholm) **7:**1-114, May, 1945, *Abst.* in *J.A.M.A.* **132(2):**113, September 14, 1946.

Hobaek treated 77 patients with uncomplicated leukoplakia at the Norwegian Radium Hospital during the period of 1932 and 1945. He also treated a total of 1,272 cases of cancer of the oral cavity, including cancer of the lips, during the same period. Of these 1,272 cancers, 169 have arisen in a leukoplakic lesion which has been located in the cheek in 24 cases, on the tongue in 44 cases, on the gingiva in 21 cases, on the palate in 10 cases and on the lips in 70 cases. In a series of 246 cases of leukoplakia there were 181 in men and 65 in women; the average age was 60.1 years. Most of the men were moderate to heavy smokers; none of the women smoked. Considering the great number of persons who are using or abusing tobacco compared with the relatively rare occurrence of a precancerous or cancerous condition in the oral cavity, it is suggested that there is an individual predisposition for the use of tobacco to lead to leukoplakia and in turn to cancer. In the author's 246 cases of leukoplakia there were only 20 with a positive Wassermann reaction or with a history of syphilis. Among the 44 patients with cancer of the tongue arising from a leukoplakial lesion, only 8 had syphilis. Jagged, carious teeth were found in only 12 cases and badly fitting prostheses in 29. The main point in etiology of the leukoplakias is a chronic irritation of a predisposed mucous membrane by a mechanical, less often by a thermic, chemical or electrogalvanic irritant. Electrocoagulation is the treatment of choice for uncomplicated epithelial hyperplasia, radium or electrocoagulation with subsequent radium application for all leukoplakias with signs of gross atypia. Leukoplakia is the most common precancerous condition in the oral cavity.

—*Copy*

395—Hoogendoorn, D.: **Diphtheric gingivitis and stomatitis,** *Nederlandsch Tijdschrift v. Geneeskunde,* (Amsterdam) **90:**479-518, May 18, 1946 in *J.A.M.A.* **132(8):**481, Oct. 26, 1946.

Hoogendoorn treated a number of persons for gingivitis. In 1 of these a smear was positive for diphtheria bacilli. Cure required a month, but specific antidiphtheric treatment was not used. In other patients with gingivitis the search for diphtheria was negative. In 1 patient with a severe refractory gingivitis administration of antidiphtheritic serum resulted in rapid improvement. Examination of the oral cavity of 26 of 35 men who had been associated with this patient revealed 2 bacillus carriers and a number with enlarged tonsils or gingivitis. Patients with gingivitis who do not promptly react to the usual treatment should be examined for the presence of diphtheria bacilli. If there is an epidemic of gingivitis

or if a patient with gingivitis has had contact with a diphtheria patient or carrier, bacilli should always be searched for and, when they are detected, specific therapy should be instituted.

—*Copy*

396—Sour Taste, Query, *J.A.M.A.*, **132 (2):117,** Sept. 14, 1946.

Query concerns sour taste in patient with two silver fillings. Possible reasons for any bad taste are certain medicines, oral infection, bronchial infection or a post-nasal discharge; and any abnormal tongue condition. The tongue being considered to mirror condition of stomach mucosa, taste changes may follow changes in tongue papillae. Systemic diseases especially when accompanied by fever; a lesion in the brain at origin of nerves of taste; and central nervous system disorders could also produce a constant sour taste. —*C.R.*

Annual Seminar for the Study and Practice of Dental Medicine

The West Coast's Fourth Annual Seminar for the Study and Practice of Dental Medicine will be held at the Ahwahnee Hotel, Yosemite Valley, California, October 19 to 24, 1947, according to an announcement by Dr. Hermann Becks, President of the Board of Directors and Professor of Dental Medicine at the University of California.

Sponsored by all the Pacific Coast Dental Associations, the Seminar combines lectures with informal group discussions and question periods. The lectures will be on non-mechanical subjects, emphasizing the application of the basic sciences to the practice of dentistry, and will include such topics as nutrition, enzymology, endocrine disturbances, virus diseases, and protein biology. Among the speakers will be Dr. William A. Albrecht, University of Missouri; Drs. Allan G. Brodie, Isaac Schour, and John B. Youmans, University of Illinois; Drs. Thomas Francis, Jr., Howard B. Lewis, and L. H. Newburgh, University of Michigan; Dr. Gustav W. Rapp, Loyola University, Chicago, Illinois.

The number of Seminarians will be limited and applicants are required to submit one case report. They must have attended a postgraduate course in the basic sciences or its equivalent, during the current year.

—MARION G. LEWIS,
Executive Secretary.

A.D.A. News Release

For Release February 1, 1947:

Scientific evidence is insufficient to warrant the use of fluoride tablets or bone meal preparations as dietary supplements in an effort to prevent dental decay, the Council on Dental Therapeutics of the American Dental Association reported today.

In the current issue of the JOURNAL OF THE AMERICAN DENTAL ASSOCIATION, the Council pointed out that during the past year many tablet preparations which contain some synthetic salt of fluorine and one or more vitamins have been placed on the market as dietary supplements for use in the control of dental caries. Recommended dosages would provide up to three milligrams of calcium fluoride daily.

"Though probably not dangerous in amounts recommended for daily consumption," the report read, "fluoride added to diets already high in fluorine content or consumed in areas where water supplies contain significant concentrations of fluorine may constitute a health hazard.

"This possibility and inconclusive nature of experimental evidence concerning their effectiveness render synthetic fluoride and fluoride-vitamin preparations for use in the treatment of dental caries not acceptable for inclusion in the A.D.A. list of Accepted Dental Remedies at this time."

BOOK REVIEWS

Psychobiologic Foundations in Dentistry. By Edward J. Ryan, B.S., D.D.S., Springfield, Illinois: Charles C. Thomas, 1946. 131 pp.

The author of this book is well-known for his several activities in dentistry, especially as an editor and writer. Dr. Ryan is always well-informed when he attempts to discuss any subject, and *Psychobiologic Foundations in Dentistry* is proof of this statement. The general makeup of this small book is pleasing and the large clear type is a delight to read. There are but 131 pages and most readers will regret that Dr. Ryan did not pursue his discussion of the main dental subjects still further as regards the relation of psychosomatic medicine to them. One is bound to admire the author's courage in preparing a book for dentists on a purely biologic theme. It is a clear and convincing introduction to a study of the subject.

The movement of psychosomatic medicine among physicians is of quite recent development, while but three articles relating to dentistry carry the term "physchosomatic" in the *Index—Dental Periodical Literature* (1942-1944). Dr. Ryan's book is therefore timely.

The author believes that dentists prefer theories "associated with tangible things that can be counted or measured" such as bacteria, toothbrush strokes, foods, or chemicals; abstract ideas do not appeal and are classed as "impractical." He writes, "We are likely to look for the explanation of dental disease and methods of treatment within the fields of physics, engineering, or chemistry, and neglect the biologic Man who possesses forces within his own organism that may explain his disease and aid us in treatment."

The book is, "an attempt to outline the studies in constitutional physiology and pathology and in psychobiology, and to make some interpretation that may be helpful in dental clinical practice."

The so-called rampant type of dental caries and the degenerative type of periodontal disease are discussed at length as to their etiology and prognosis and their probable relation to periods of emotional stress. Periodontists will agree with the author that periodontal diseases are not monocausal and that they are not prevented, controlled or cured by one factor alone. However, they will take emphatic exception to his statement that the old saw "We cannot cure pyorrhea but we can prolong it"—"seems to be substantially correct" and that the degenerative changes in the supporting tissues of the teeth are "irreversible, and that the potentials for tooth loss have not been changed by whatever treatment we use." If this were the rule, periodontists would have admitted it many years ago. The potentials can be kept under control in most cases by correct procedures of treatment.

The last two chapters in the book, Clinical Aspects of Psychobiology, and Dental Disease in the Seven Ages of Man are full of practical suggestions to those interested in the preservation of the natural teeth and to any dentist desirous of improving and broadening his services to patients.

The bibliography contains fifty-eight interesting references. —G.R.S.

Dentistry. An Agency of Health Service. By Malcolm Wallace Carr, D.D.S. New York City: The Commonwealth Fund, 219 pp.

This is one of a series of monographs sponsored by the New York Academy of Medicine as a result of one of the activities of its Committee on Medicine and the Changing Order. Dr. Carr is Chairman of the Subcommittees on Dentistry composed of six members.

The book is for dentists, physicians, and "the intelligent layman." It gives the dentist broad information as regards the history of his profession, its development in the fields of scientific research, education, and public health service. It also makes clear the responsibilities that must be assumed and the problems dentistry must solve. The

physician would find much to interest and to surprise him in the efforts and accomplishments of the dental profession. The respect of the layman for his dentist would be vastly improved by even a casual reading of *Dentistry. An Agency of Health Service.* The title alone would give him food for thought. This book should be in every dentist's waiting room after the dentist himself has read it.

Attention is called in the Preface to an interesting and significant fact about this book, that a *medical* organization sponsored and subsidized its publication. The least that the individual dentist can do to show his appreciation of this gesture is to personally see to it that it has a wide circulation. Anyone who has any doubt as to whether dentistry will survive should read the record as put down here of its heroic struggle for survival, during the past one hundred years, against every kind of discouragement.

The book is divided into six parts: History, Education, Dental Practice, Research, Dental Socio-Economics, Summary and Conclusions.

To understand the peculiar problems concerning the future of dentistry, one must read this book in its entirety.

—G. R. S.

Index to Dental Periodical Literature. Chicago: American Dental Association, 1946. The huge task of indexing dental periodical literature covering a period of years, however few, inspires the gratitude of all dentists who are readers or students to those responsible for any part of it. The recent Index covers a period of three years 1942-1943-1944. Its new and much simplified method of indexing is most practical and time saving. The volume covers 126 publications in English.

There is a complete list of subject headings used in the volume and periodontists will be especially interested in the following, copied from page 343. "Periodontia: See Pyorrhea alveolaris. Periodontitis: See Pyorrhea alveolaris. Periodontoclasia: See Pyorrhea alveolaris." And yet out of 147 articles listed under "Pyorrhea alveolaris" only 23 use the word "pyorrhea" in the title. It is to be hoped that the next *Index to Dental Periodical Literature* will drop the term "pyorrhea alveolaris" as a heading. It is definitely an absolete term and is certainly not so inclusive as to include periodontia. "Periodontal diseases" would be better. In spite of this constructive criticism, most dentists need this new index if only to read the titles with the good intention of reading those articles that interest him. —G.R.S.

Three Members of the Council—American Academy of Periodontology at Meeting—Chicago, Illinois, February 8, 1947.

CLARKE E. CHAMBERLAIN RAYMOND E. JOHNSON SAMUEL R. PARKS

Comments On The Journal of Periodontology
1931-1946

1931—"I do want to compliment you and your Board on the appearance and make up of the Journal, which is a decided step in advance and a valuable contribution to dental literature.
"Trusting that the journal will keep up its standard and will enjoy a successful future."

1931—"If the Academy of Periodontology did nothing else to justify its existence, this contribution would make it quite worth while."

1931—"I must confess to you that I was almost taken off my feet with the quality of your Journal from every standpoint."

1932—"Hoping that your Journal will long continue as an inspiration in dental journalism."

1932—"The Journal of Periodontology is the only publication of its kind in the world that is devoted to this subject, excepting the Paradentium (Berlin), issued by the ARPA and is a supplement to the Zahnartztliche Rundschau. It is beautifully gotten up, both as to appearance and content. The international digest places it among the first publications in the English language, as a source of information. Periodontists should be proud of their specialist Journal. But we see it as an indispensable volume for every dentist who wants to know—and should know—about the recognition, diagnosis and treatment of pyorrhea."—The Stomatologic Record.

1932—"I have always admired the makeup of your Journal and consider it a splendid example of a professional and scientific journal."

1932—"I wish to congratulate you and your associates particularly on the last Journal of the Academy. It is one of the most helpful compilations of literature along our branch of dentistry that I have had access to. We owe you much for this splendid effort and its results."

1933—"The Journal of Periodontology must be good for more dentists seem to read it than any other we have."—Librarian.

1933—"I must tell you once more how much I appreciate receiving your Journal of Periodontology. The January issue just came and I must congratulate you on its excellence.
"No one knows better than I the work that is put on that publication, and I know the profession appreciates it."

1934—"The January issue of the Journal of Periodontology was received yesterday, and examined with interest and pleasure. It maintains the high level of professional achievement and typographical excellence upon which it was placed at the start, and is truly representative of that exaltation of purpose, fineness of quality, and effectiveness of execution which distinguish the worthiest altruistic accomplishments."

1934—"The paper and typographical set-up of your Journal are of very fine quality."

1936—"We wish to take this opportunity to compliment you on the make up of your publication."

1936—"The cover, general appearance, type face, arrangement—the entire format is conceived with dignity and professionalism. Its make up *wants* you to read it. And there is no letdown after doing so. We have your journal on file in our Library, and I've been familiar with its appearance and contents in general, but today was the first time I ever read it through. Believe me, it shan't be the last time."

1941—"I always enjoy the Journal of Periodontology and the Profession is indebted to you for the publication of a magazine of such high quality, standards and worth."

1944—"The Journals are priceless to me."

1944—"It is with a great deal of pleasure that I received your card advising me that my subscription to the Journal of Periodontology was extended to April '46. Inasmuch as I have previously expressed my satisfaction with the Journal in its present form, I hope that it will not be altered to any great extent."

1944—"The Journal is much too valuable for us to have any missing issues."—Librarian

1944—"I look forward to the Journal more than any other dental journal."

1945—"I am glad that the Journal will appear quarterly. The six-month interval was much too long for such an important source of information."—Librarian

1945—"I always enjoy reading all the articles and Editorial comments."

1945—"I was delighted with the way the illustrations came out. They were in every respect as good as the originals."—Author.

1945—"The issue is sure very fine. The illustrations are just perfect. No one can expect more."

1946—"The Journal is keeping up its fine record and I am learning something from every issue, especially from Dr. Radusch's and Dr. Leonard's articles."

1946—"Indeed we do not wish our subscription to your valuable and necessary Journal to lapse."
—Librarian